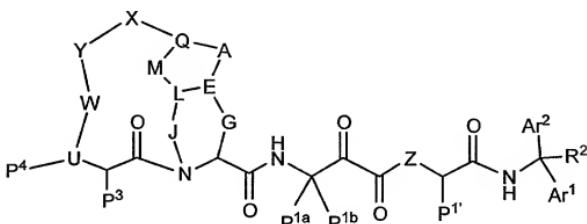


WHAT IS CLAIMED IS:

1. A compound, including enantiomers, stereoisomers, rotamers and tautomers of said compound, and pharmaceutically acceptable salts, solvates or derivatives thereof, with said compound having the general structure shown in Formula I:



- 10 wherein:

X and Y are independently selected from the moieties: alkyl, alkyl-aryl, heteroalkyl, heteroaryl, aryl-heteroaryl, alkyl-heteroaryl, cycloalkyl, alkyl ether, alkyl-aryl ether, aryl ether, alkyl amino, aryl amino, alkyl-aryl amino, alkyl thio, alkyl-aryl thio, aryl thio, alkyl sulfone, alkyl-aryl sulfone, 15 aryl sulfone, alkyl-alkyl sulfoxide, alkyl-aryl sulfoxide, alkyl amide, alkyl-aryl amide, aryl amide, alkyl sulfonamide, alkyl-aryl sulfonamide, aryl sulfonamide, alkyl urea, alkyl-aryl urea, aryl urea, alkyl carbamate, alkyl-aryl carbamate, aryl carbamate, alkyl-hydrazide, alkyl-aryl hydrazide, alkyl hydroxamide, alkyl-aryl hydroxamide, alkyl sulfonyl, aryl sulfonyl, 20 heteroalkyl sulfonyl, heteroaryl sulfonyl, alkyl carbonyl, aryl carbonyl, heteroalkyl carbonyl, heteroaryl carbonyl, alkoxy carbonyl, aryloxycarbonyl, heteroaryloxycarbonyl, alkylaminocarbonyl, arylaminocarbonyl, heteroarylaminocarbonyl or a combination thereof, with the proviso that X and Y may optionally be additionally substituted with X<sup>11</sup> or X<sup>12</sup>;

$X^{11}$  is alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkyl-alkyl, heterocyclyl, heterocyclylalkyl, aryl, alkylaryl, arylalkyl, heteroaryl, alkylheteroaryl, or heteroarylalkyl, with the proviso that  $X^{11}$  may be additionally optionally substituted with  $X^{12}$ ;

5  $X^{12}$  is hydroxy, alkoxy, aryloxy, thio, alkylthio, arylthio, amino, alkylamino, arylamino, alkylsulfonyl, arylsulfonyl, alkylsulfonamido, arylsulfonamido, carboxy, carbalkoxy, carboxamido, alkoxy carbonylamino, alkoxy carbonyloxy, alkylureido, arylureido, halogen, cyano, or nitro, with the proviso that said alkyl, alkoxy, and aryl may be additionally optionally

10 substituted with moieties independently selected from  $X^{12}$ ;

W may be present or absent, and if W is present, W is selected from C=O, C=S, or SO<sub>2</sub>;

Q may be present or absent, and when Q is present, Q is CH, N, P, (CH<sub>2</sub>)<sub>p</sub>, (CHR)<sub>p</sub>, (CRR')<sub>p</sub>, O, RNR, S, or SO<sub>2</sub>; and when Q is absent, M is

15 also absent, A is directly linked to X;

A is O, CH<sub>2</sub>, (CHR)<sub>p</sub>, (CHR-CHR')<sub>p</sub>, (CRR')<sub>p</sub>, NR, S, SO<sub>2</sub> or a bond;

U is selected from O, N, or CH;

E is CH, N or CR, or a double bond towards A, L or G;

G may be present or absent, and when G is present, G is (CH<sub>2</sub>)<sub>p</sub>, (CHR)<sub>p</sub>,

20 or (CRR')<sub>p</sub>; and when G is absent, J is present and E is directly connected to the carbon atom where G was connected to;

J may be absent or present, and when J is present, J is (CH<sub>2</sub>)<sub>p</sub>, (CHR)<sub>p</sub>, or (CRR')<sub>p</sub>, SO<sub>2</sub>, NH, NR or O; and when J is absent, G is present and L is directly linked to nitrogen;

25 L may be present or absent, and when L is present, L is CH, CR, O, S or NR; and when L is absent, then M may be absent or present, and if M is present with L being absent, then M is directly and independently linked to E, and J is directly and independently linked to E;

M may be present or absent, and when M is present, M is O, NR, S, SO<sub>2</sub>,

30 (CH<sub>2</sub>)<sub>p</sub>, (CHR)<sub>p</sub>, (CHR-CHR')<sub>p</sub>, or (CRR')<sub>p</sub>;

p is a number from 0 to 6;

R and R' are independently selected from the group consisting of H; C1-C10 alkyl; C2-C10 alkenyl; C3- C8 cycloalkyl; C3-C8 heterocycloalkyl, alkoxy, aryloxy, alkylthio, arylthio, amino, amido, cyano, nitro; (cycloalkyl)-alkyl and (heterocycloalkyl)alkyl, wherein said cycloalkyl is made of three to eight carbon atoms, and zero to six oxygen, nitrogen, sulfur, or phosphorus atoms, and said alkyl is of one to six carbon atoms; aryl; heteroaryl; alkyl-aryl; and alkyl-heteroaryl; with said alkyl, heteroalkyl, alkenyl, heteroalkenyl, aryl, heteroaryl, cycloalkyl and heterocycloalkyl

5      10      15      20      25      30

moieties may be optionally substituted, with said term "substituted" referring to optional and suitable substitution with one or more moieties selected from the group consisting of alkyl, alkenyl, alkynyl, aryl, aralkyl, cycloalkyl, heterocyclic, halogen, hydroxy, thio, alkoxy, aryloxy, alkylthio, arylthio, amino, amido, cyano, nitro, sulfonamido; and

P<sup>1a</sup>, P<sup>1b</sup>, P<sup>1c</sup> and P<sup>3</sup> are independently selected from: H, C1-C10 straight or branched chain alkyl, C2-C10 straight or branched chain alkenyl, and C3-C8 cycloalkyl, C3-C8 heterocyclic; (cycloalkyl)alkyl or (heterocycl)alkyl , wherein said cycloalkyl is made up of 3 to 8 carbon atoms, and zero to 6 oxygen, nitrogen, sulfur, or phosphorus atoms, and said alkyl is of 1 to 6 carbon atoms;

aryl, heteroaryl, arylalkyl, or heteroarylalkyl, wherein said alkyl is of 1 to 6 carbon atoms;

wherein said alkyl, alkenyl, cycloalkyl, heterocycl; (cycloalkyl)alkyl and (heterocycl)alkyl moieties may be optionally substituted with R'', and

further wherein said P<sup>1a</sup> and P<sup>1b</sup> may optionally be joined to each other to form a spirocyclic or spiroheterocyclic ring, with said spirocyclic or spiroheterocyclic ring containing zero to six oxygen, nitrogen, sulfur, or phosphorus atoms, and may be additionally optionally substituted with R''; R'' is hydroxy, alkoxy, aryloxy, thio, alkylthio, arylthio, amino, alkylamino, arylamino, alkylsulfonyl, arylsulfonyl, alkylsulfonamido, arylsulfonamido,

carboxy, carbalkoxy, carboxamido, alkoxy carbonylamino, alkoxy carbonyloxy, alkylureido, arylureido, halogen, cyano, or nitro moiety, with the proviso that the alkyl, alkoxy, and aryl may be additionally optionally substituted with moieties independently selected from R" ;

5 Z is O, NH or NR" ;  
 R" is alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkyl-alkyl, heterocycl, heterocyclalkyl, aryl, alkylaryl, arylalkyl, heteroaryl, alkylheteroaryl, or heteroarylalkyl moiety, with the proviso that R" may be additionally optionally substituted with R" ;

10 Ar<sup>1</sup> and Ar<sup>2</sup> are independently selected from phenyl; 2-pyridyl, 3-pyridyl, 4-pyridyl or their corresponding N-oxides; 2-thiophenyl; 3-thiophenyl; 2-furanyl; 3-furanyl; 2-pyrrolyl; 3-pyrrolyl; 2-imidazolyl; 3(4)-imidazolyl; 3-(1,2,4-triazolyl); 5-tetrazolyl; 2-thiazolyl; 4-thiazolyl; 2-oxazolyl; or 4-oxazolyl; either or both of which may be optionally substituted with R<sup>1</sup> ;

15 R<sup>1</sup> is H, halogen, cyano, nitro, CF<sub>3</sub>, Si(alkyl)<sub>3</sub>, straight-chain or branched lower alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkyl-alkyl, aryl, alkylaryl, arylalkyl, heteroaryl, hydroxy, alkoxy, aryloxy, alkoxy carbonyloxy, (alkylamino)carbonyloxy, mercapto, alkylthio, arylthio, alkylsulfinyl, heterocyclsulfinyl, arylsulfinyl, heteroaryl sulfinyl, alkylsulfonyl, heterocyclsulfonyl, arylsulfonyl, heteroaryl sulfonyl, alkylsulfonyl, alkylcarbonyl, arylcarbonyl, carboxy, alkoxy carbonyl, aryloxycarbonyl, heteroaryloxycarbonyl, alkyaminocarbonyl, arylaminocarbonyl, amino, alkylamino, arylamino, alkylsulfonamide, arylsulfonamide, alkoxy carbonylamino, alkylureido, or arylureido;

20 P<sup>4</sup> is H, linear or branched alkyl, arylalkyl or aryl; and R<sup>2</sup> is H, cyano, CF<sub>3</sub>, straight-chain or branched lower alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkyl-alkyl, aryl, alkylaryl, arylalkyl, heteroaryl, alkylsulfonyl, arylsulfonyl, carboxy, alkoxy carbonyl, aryloxycarbonyl, alkyaminocarbonyl, (alkylamino)carbonyl, or arylaminocarbonyl.

2. The compound according to Claim 1, wherein R<sup>2</sup> is selected from the group consisting of H, alkyl, alkenyl, alkoxy carbonyl, or (allyl amino) carbonyl.

3. The compound according to Claim 2, wherein R<sup>2</sup> is H, U is N and P<sup>4</sup> is H.

4. The compound according to Claim 1, wherein Ar<sup>1</sup> and Ar<sup>2</sup> are independently selected from the group consisting of phenyl, 2-thiophenyl, 2-furanyl, 3-furanyl, 3(4)-imidazolyl, 3-(1,2,4-triazolyl), 5-tetrazolyl, or 2-thiazolyl.

10 5. The compound according to Claim 4, wherein Ar<sup>2</sup> is phenyl and Ar<sup>1</sup> is selected from the group consisting of 3-(1,2,4-triazolyl), 5-tetrazolyl, or 2-thiazolyl and U is N and P<sup>4</sup> is H.

6. The compound according to Claim 1 or Claim 4, wherein R<sup>1</sup> is H, CF<sub>3</sub>, CH<sub>3</sub>, alkyl or alkenyl.

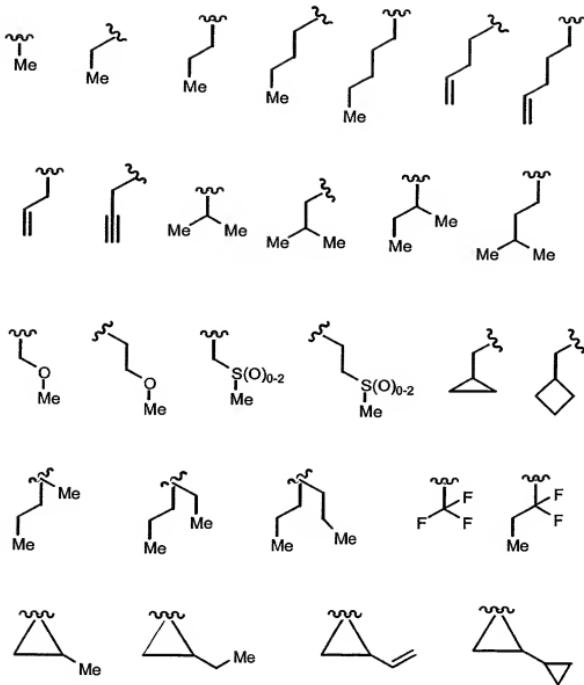
15 7. The compound according to Claim 4, wherein R<sup>1</sup> is H, CF<sub>3</sub>, CH<sub>3</sub>, alkyl or alkenyl.

8. The compound according to Claim 1, wherein P<sup>1</sup> is either H or CH<sub>3</sub>.

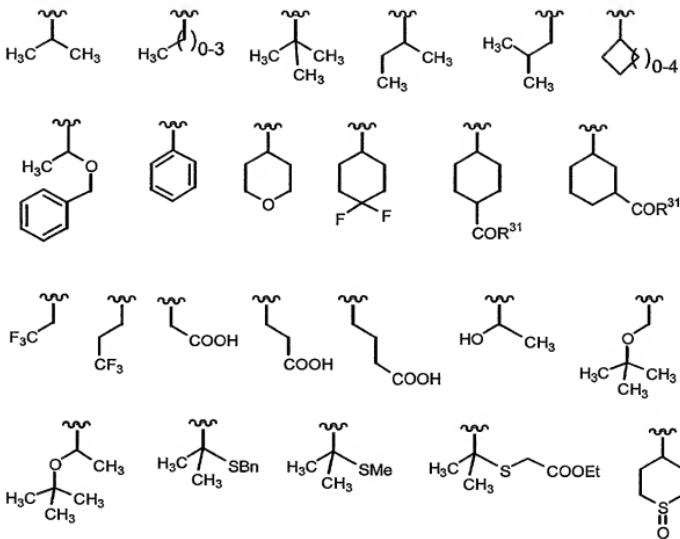
9. The compound according to Claim 1, wherein P<sup>1</sup> is H such that P<sup>1</sup>

20 and the adjacent nitrogen and carbonyl moieties correspond to the residuum of a glycine unit.

10. The compound of Claim 4, wherein P<sup>1a</sup> and P<sup>1b</sup> are independently selected from the group consisting of the following moieties:

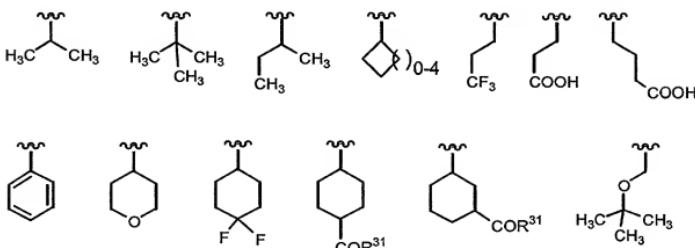


5 11. The compound according to Claim 4, wherein P<sup>3</sup> is selected from the group consisting of:



wherein  $R^{31}$  = OH or O-alkyl.

12. The compound of Claim 4, wherein P<sup>3</sup> is selected from the group  
5 consisting of the following moieties:



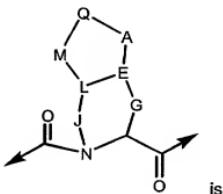
wherein  $R^{31} = OH$  or  $O-alkyl$ .

13. The compound according to Claim 1, wherein  $P^4$  is selected from the group consisting of H, tertiary butyl, isobutyl and phenyl substituents.

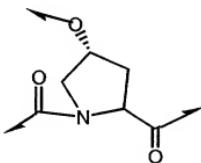
14. The compound according to Claim 11, where Z is NH and U is N.

15. The compound of Claim 1, wherein the moiety:

5

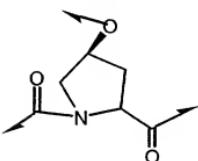


is



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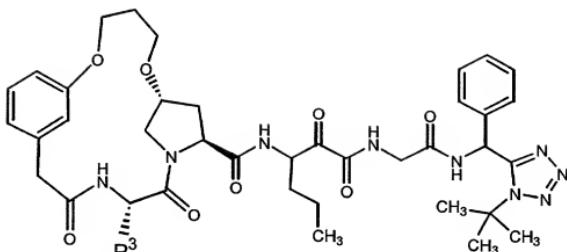
or



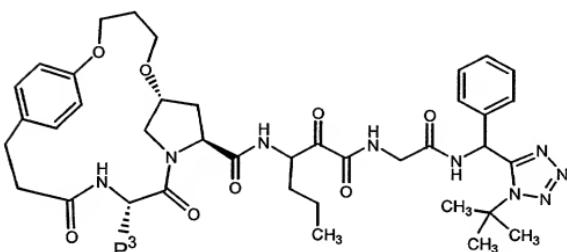
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16. The compound of Claim 16, wherein Z is NH and U is N.

17. The compound according to Claim 1, wherein said compound is selected from the group consisting of compounds having the structural formulae:



or



wherein P<sup>3</sup> is an isopropyl, tertiary butyl, cyclopentyl, or cyclohexyl moiety.

- 5 18. A pharmaceutical composition comprising as an active ingredient a compound of Claim 1.
19. The pharmaceutical composition of Claim 18 for use in treating disorders associated with HCV.
20. The pharmaceutical composition of Claim 18, additionally comprising a pharmaceutically acceptable carrier.
- 10 21. The pharmaceutical composition of Claim 20, additionally containing an antiviral agent.
22. The pharmaceutical composition of Claim 21, still additionally containing an interferon.
- 15 23. The pharmaceutical composition of Claim 22, wherein said antiviral agent is ribavirin and said interferon is  $\alpha$ -interferon.

24. A method of treating disorders associated with the HCV virus, said method comprising administering to a patient in need of such treatment a pharmaceutical composition which comprises therapeutically effective amounts of a compound of Claim 1.

5 25. The method of Claim 24, wherein said administration is subcutaneous.

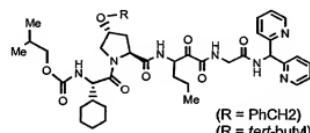
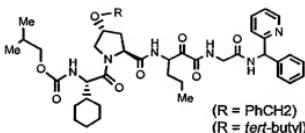
26. The use of a compound of Claim 1 for the manufacture of a medicament to treat disorders associated with the HCV protease.

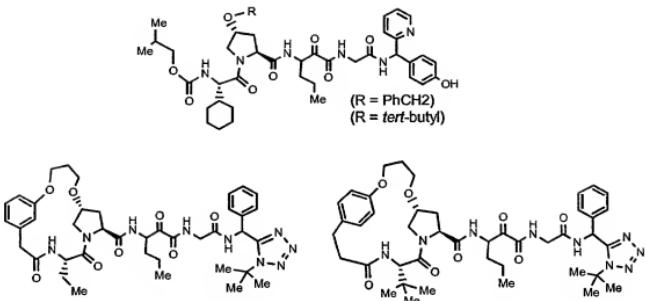
27. A method of preparing a pharmaceutical composition for treating

10 the disorders associated with the HCV virus, said method comprising bringing into intimate contact a compound of Claim 1 and a pharmaceutically acceptable carrier.

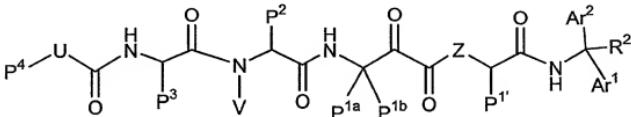
28. A compound exhibiting HCV protease inhibitory activity, including enantiomers, stereoisomers and tautomers of said compound, and

15 pharmaceutically acceptable salts or solvates of said compound, said compound being selected from the compounds of structures listed below:





29. A compound, including enantiomers, stereoisomers, rotomers and tautomers of said compound, and pharmaceutically acceptable salts,  
 5 solvates or derivatives thereof, with said compound having the general structure shown in Formula II:



Formula II

wherein:

10  $P^{1a}$ ,  $P^{1b}$ ,  $P^1$ ,  $P^2$ , and  $P^3$  are independently:  
 H, C1-C10 straight or branched chain alkyl, C2-C10 straight or branched chain alkenyl, and C3-C8 cycloalkyl, C3-C8 heterocyclic; (cycloalkyl)alkyl or (heterocyclyl)alkyl, wherein said cycloalkyl is made up of 3 to 8 carbon atoms, and zero to 6 oxygen, nitrogen, sulfur, or phosphorus atoms, and  
 15 said alkyl is of 1 to 6 carbon atoms;  
 aryl, heteroaryl, arylalkyl, or heteroarylalkyl, wherein said alkyl is of 1 to 6 carbon atoms;  
 wherein said alkyl, alkenyl, cycloalkyl, heterocyclyl; (cycloalkyl)alkyl and (heterocyclyl)alkyl moieties may be optionally substituted with  $R''$ , and

further wherein said  $P^{1a}$  and  $P^{1b}$  may optionally be joined to each other to form a spirocyclic or spiroheterocyclic ring, with said spirocyclic or spiroheterocyclic ring containing zero to six oxygen, nitrogen, sulfur, or phosphorus atoms, and may be additionally optionally substituted with  $R''$ ;

5     $R''$  is hydroxy, alkoxy, aryloxy, thio, alkylthio, arylthio, amino, alkylamino, arylamino, alkylsulfonyl, arylsulfonyl, alkylsulfonamido, arylsulfonamido, carboxy, carbalkoxy, carboxamido, alkoxy carbonylamino, alkoxy carbonyloxy, alkylureido, arylureido, halogen, cyano, or nitro moiety, with the proviso that the alkyl, alkoxy, and aryl may be additionally

10    optionally substituted with moieties independently selected from  $R''$ ,  $Z$  is O, NH or  $NR'''$ ;  $R'''$  is alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkyl-alkyl, heterocyclyl, heterocyclylalkyl, aryl, alkylaryl, arylalkyl, heteroaryl, alkylheteroaryl, or heteroarylalkyl moiety, with the proviso that  $R'''$  may be additionally

15    optionally substituted with  $R''$ ;  $Ar^1$  and  $Ar^2$  are independently selected from phenyl; 2-pyridyl, 3-pyridyl, 4-pyridyl or their corresponding N-oxides; 2-thiophenyl; 3-thiophenyl; 2-furanyl; 3-furanyl; 2-pyrrolyl; 3-pyrrolyl; 2-imidazolyl; 3(4)-imidazolyl; 3-(1,2,4-triazolyl); 5-tetrazolyl; 2-thiazolyl; 4-thiazolyl; 2-oxazolyl; or 4-

20    oxazolyl; either or both of which may be optionally substituted with  $R^1$ ;  $R^1$  is H, halogen, cyano, nitro,  $CF_3$ ,  $Si(alkyl)_3$ , straight-chain or branched lower alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkyl-alkyl, aryl, alkylaryl, arylalkyl, heteroaryl, hydroxy, alkoxy, aryloxy, alkoxy carbonyloxy, (alkylamino)carbonyloxy, mercapto, alkylthio, arylthio, alkylsulfinyl,

25    heterocyclylsulfinyl, arylsulfinyl, heteroaryl sulfinyl, alkylsulfonyl, heterocyclylsulfonyl, arylsulfonyl, heteroaryl sulfonyl, alkyl carbonyl, aryl carbonyl, carboxy, alkoxy carbonyl, aryloxycarbonyl, heteroaryl oxycarbonyl, alkyaminocarbonyl, arylaminocarbonyl, amino, alkylamino, arylamino, alkylsulfonamide, arylsulfonamide,

30    alkoxy carbonylamino, alkylureido, or arylureido;

$P^4$  is H, linear or branched alkyl, arylalkyl or aryl;

$R^2$  is H, cyano,  $CF_3$ , straight-chain or branched lower alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkyl-alkyl, aryl, alkylaryl, arylalkyl, heteroaryl, alkylsulfonyl, arylsulfonyl, carboxy, alkoxy carbonyl, aryloxy carbonyl,

5 alkylaminocarbonyl, (allylamino)carbonyl, or arylaminocarbonyl;

U is O, NH,  $CH_2$  or  $CHR''$ ; and

V is H, methyl, or lower alkyl.

30. The compound according to Claim 29, wherein  $R^2'$  is selected from the group consisting of H, alkyl, alkenyl, alkoxy carbonyl, and (allylamino)

10 carbonyl.

31. The compound according to Claim 30, wherein  $R^2'$  is H.

32. The compound according to Claim 31, wherein  $Ar^1$  and  $Ar^2$  are independently selected from the group consisting of phenyl, 2-thiophenyl, 2-furanyl, 3-furanyl, 3(4)-imidazolyl, 3-(1,2,4-triazolyl), 5-tetrazolyl, or 2-

15 thiazolyl.

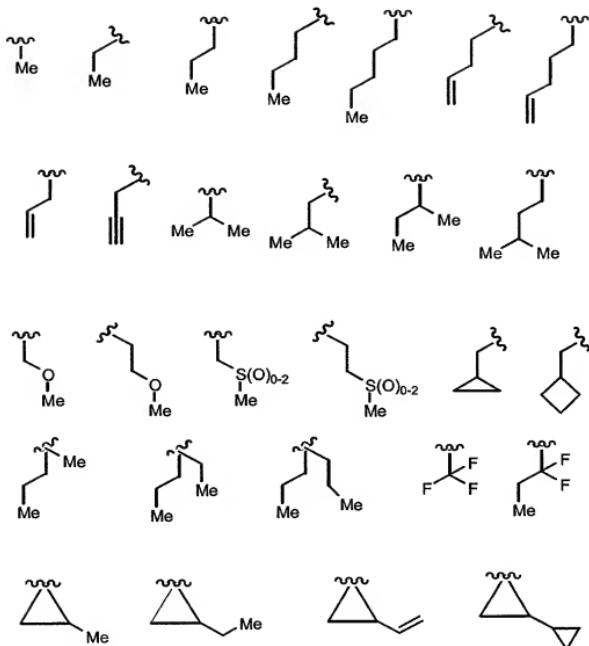
33. The compound according to Claim 32, wherein  $Ar^2$  is phenyl and  $Ar^1$  is selected from the group consisting of 3-(1,2,4-triazolyl), 5-tetrazolyl, or 2-thiazolyl.

34. The compound according to Claim 29,  $R^1$  is H,  $CF_3$ ,  $CH_3$ , alkyl or 20 alkenyl.

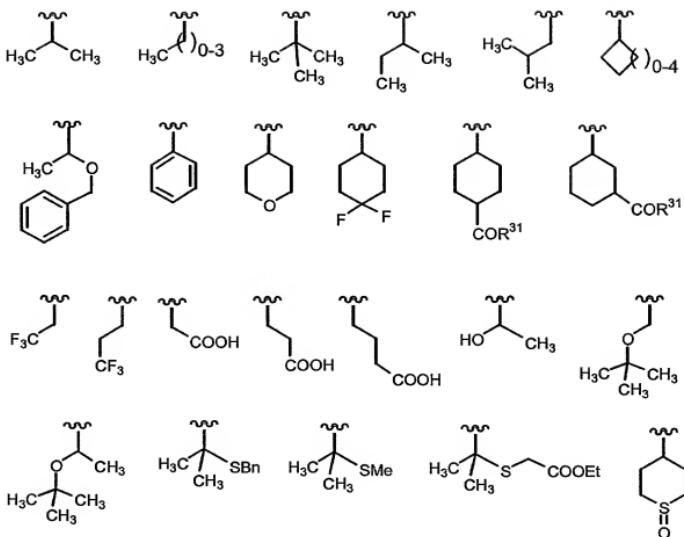
35. The compound according to Claim 29, wherein  $P^1'$  is selected either H or  $CH_3$ .

36. The compound according to Claim 29, wherein  $P^1'$  is H such that  $P^1'$  and the adjacent nitrogen and carbonyl moieties correspond to the 25 residuum of glycine unit.

37. The compound of Claim 29, wherein  $P^{1a}$  and  $P^{1b}$  are independently selected from the group consisting of the following moieties:

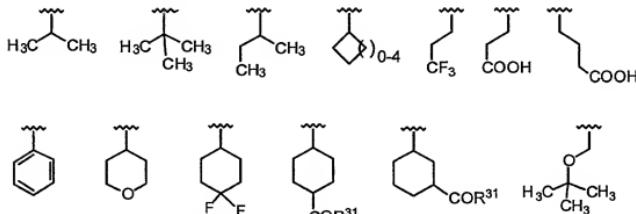


38. The compound according to Claim 29, wherein  $P^3$  is selected from the group consisting of:



wherein  $R^{31}$  = OH or O-alkyl.

5 39. The compound of Claim 38, wherein  $R^3$  is selected from the group consisting of the following moieties:

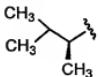


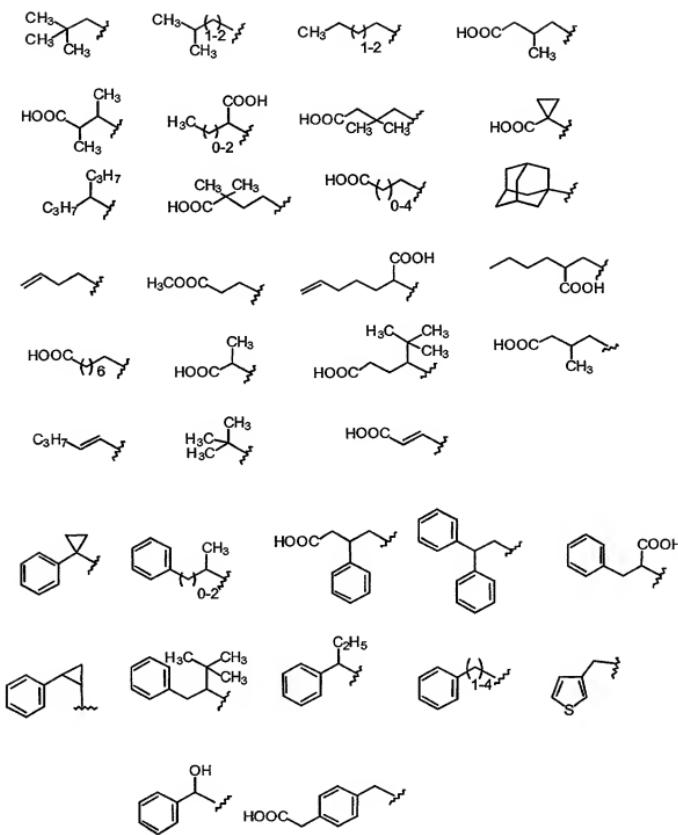
wherein  $R^{31}$  = OH or O-alkyl.

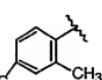
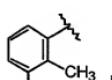
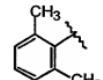
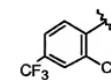
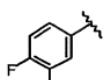
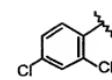
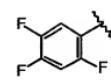
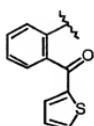
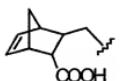
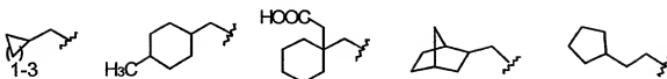
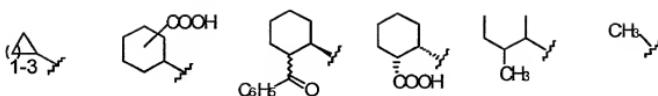
40. The compound of Claim 29, wherein U is N and P<sup>4</sup> is alkyl or arylalkyl.

41. The compound according to Claim 29, wherein U is O or CH<sub>2</sub>.

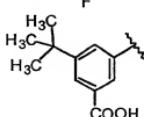
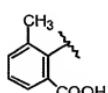
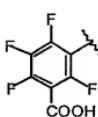
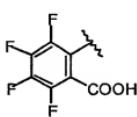
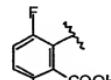
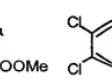
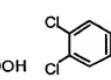
42. The compound according to Claim 29, wherein P<sup>4</sup> is selected from  
5 the following moieties:

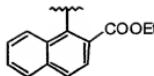
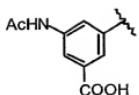






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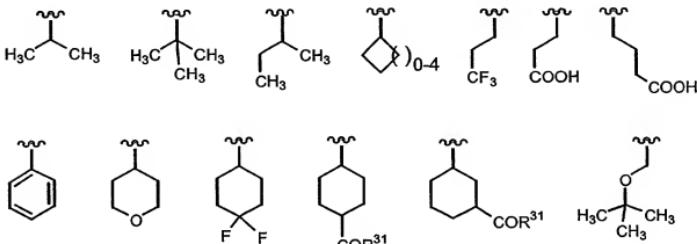


43. The compound according to Claim 42, wherein U is  $\text{CH}_2$  and  $\text{P}^4$  is phenyl.

44. The compound according to Claim 42, wherein U is O and  $\text{P}^4$  is selected from the group consisting of methyl, tertiary butyl, isobutyl, and 2,3-dimethylpropyl.

45. The compound according to Claim 42, wherein  $\text{P}^2$  and  $\text{P}^3$  are independently selected from the group consisting of: H, linear alkyl, branched alkyl, or arylalkyl, such that  $\text{P}^2$  or  $\text{P}^3$  and the adjacent nitrogen and carbonyl moieties thereto correspond to the residuum of an alpha amino acid.

46. The compound according to Claim 45, wherein  $\text{P}^3$  is selected from the following moieties:



wherein  $\text{R}^{31} = \text{OH}$  or O-alkyl.

47. The compound according to Claim 46, wherein  $\text{P}^3$  is selected from the group consisting of isopropyl tertiary butyl, isobutyl, and cyclohexyl substituents.

48. The compound of Claim 45, wherein V is H.

49. A pharmaceutical composition comprising as an active ingredient a compound of Claim 29.

50. The pharmaceutical composition of Claim 49 for use in treating disorders associated with HCV.

51. The pharmaceutical composition of Claim 49 additionally comprising a pharmaceutically acceptable carrier.

52. The pharmaceutical composition of Claim 51, additionally containing an antiviral agent.

10 53. The pharmaceutical composition of Claim 52, still additionally containing an interferon.

54. The pharmaceutical composition of Claim 53, wherein said antiviral agent is ribavirin and said interferon is  $\alpha$ -interferon.

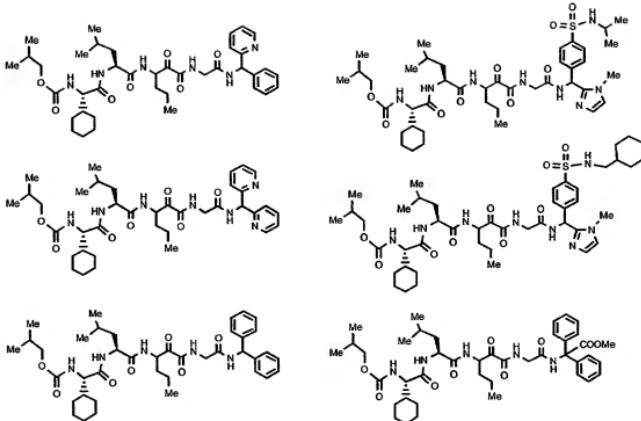
55. A method of treating disorders associated with the HCV virus, said method comprising administering to a patient in need of such treatment a pharmaceutical composition which comprises therapeutically effective amounts of a compound of Claim 29.

15 56. The method of Claim 55, wherein said administration is subcutaneous.

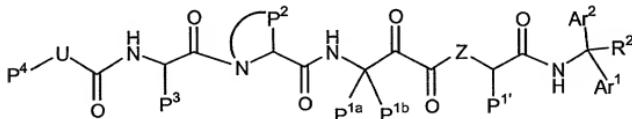
20 57. The use of a compound of Claim 29 for the manufacture of a medicament to treat disorders associated with the HCV virus.

58. A method of preparing a pharmaceutical composition for treating the disorders associated with the HCV virus, said method comprising bringing into intimate contact a compound of Claim 29 and a pharmaceutically acceptable carrier.

25 59. A compound exhibiting HCV protease inhibitory activity, including enantiomers, stereoisomers and tautomers of said compound, and pharmaceutically acceptable salts or solvates of said compound, said compound being selected from the compounds of structures listed below:



60. A compound, including enantiomers, stereoisomers, rotamers and tautomers of said compound, and pharmaceutically acceptable salts, 5 solvates or derivatives thereof, with said compound having the general structure shown in Formula III:



Formula III

wherein:

10  $P^{1a}$ ,  $P^{1b}$ ,  $P^1$ ,  $P^2$ , and  $P^3$  are independently selected from:  
 H, C1-C10 straight or branched chain alkyl, C2-C10 straight or branched chain alkenyl; and C3-C8 cycloalkyl, C3-C8 heterocyclic; (cycloalkyl)alkyl or (heterocyclyl)alkyl, wherein said cycloalkyl is made up of 3 to 8 carbon atoms, and zero to 6 oxygen, nitrogen, sulfur, or phosphorus atoms, and said alkyl is of 1 to 6 carbon atoms;

15

aryl, heteroaryl, arylalkyl, or heteroarylalkyl, wherein said alkyl is of 1 to 6 carbon atoms;

wherein said alkyl, alkenyl, cycloalkyl, heterocycl; (cycloalkyl)alkyl and (heterocycl)alkyl moieties may be optionally substituted with R", and

5 further wherein said P<sup>1a</sup> and P<sup>1b</sup> may optionally be joined to each other to form a spirocyclic or spiroheterocyclic ring, with said spirocyclic or spiroheterocyclic ring containing zero to six oxygen, nitrogen, sulfur, or phosphorus atoms, and may be additionally optionally substituted with R"; R" is hydroxy, alkoxy, aryloxy, thio, alkylthio, arylthio, amino, alkylamino,

10 arylamino, alkylsulfonyl, arylsulfonyl, alkylsulfonamido, arylsulfonamido, carboxy, carbalkoxy, carboxamido, alkoxy carbonylamino, alkoxy carbonyloxy, alkylureido, arylureido, halogen, cyano, or nitro moiety, with the proviso that the alkyl, alkoxy, and aryl may be additionally optionally substituted with moieties independently selected from R";

15 Z is O, NH or NR"; R"" is alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkyl-alkyl, heterocycl, heterocyclalkyl, aryl, alkylaryl, arylalkyl, heteroaryl, alkylheteroaryl, or heteroarylalkyl moiety, with the proviso that R"" may be additionally optionally substituted with R";

20 Ar<sup>1</sup> and Ar<sup>2</sup> are independently selected from phenyl; 2-pyridyl, 3-pyridyl, 4-pyridyl or their corresponding N-oxides; 2-thiophenyl; 3-thiophenyl; 2-furanyl; 3-furanyl; 2-pyrrolyl; 3-pyrrolyl; 2-imidazolyl; 3(4)-imidazolyl; 3-(1,2,4-triazolyl); 5-tetrazolyl; 2-thiazolyl; 4-thiazolyl; 2-oxazolyl; or 4-oxazolyl; either or both of which may be optionally substituted with R<sup>1</sup>;

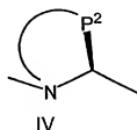
25 R<sup>1</sup> is H, halogen, cyano, nitro, CF<sub>3</sub>, Si(alkyl)<sub>3</sub>, straight-chain or branched lower alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkyl-alkyl, aryl, alkylaryl, arylalkyl, heteroaryl, hydroxy, alkoxy, aryloxy, alkoxy carbonyloxy, (alkylamino)carbonyloxy, mercapto, alkylthio, arylthio, alkylsulfinyl, heterocyclsulfinyl, arylsulfinyl, heteroaryl sulfinyl, alkylsulfonyl, heterocyclsulfonyl, arylsulfonyl, heteroaryl sulfonyl, alkyl carbonyl,

arylcarbonyl, carboxy, alkoxy carbonyl, aryloxycarbonyl, heteroaryloxycarbonyl, alkyaminocarbonyl, arylaminocarbonyl, amino, alkylamino, arylamino, alkylsulfonamido, arylsulfonamido, alkoxy carbonyl amido, alkylureido, or arylureido;

5 P<sup>4</sup> is H, linear or branched alkyl, arylalkyl or aryl;  
 R<sup>2</sup> is H, cyano, CF<sub>3</sub>, straight-chain or branched lower alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkyl-alkyl, aryl, alkylaryl, arylalkyl, heteroaryl, alkylsulfonyl, arylsulfonyl, carboxy, alkoxy carbonyl, aryloxycarbonyl, alkyaminocarbonyl, (allyl amino) carbonyl, or arylaminocarbonyl;

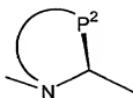
10 U is O, NH, CH<sub>2</sub> or CHR";

and



15 where moiety IV indicates a cyclic ring structure, with the proviso that said cyclic ring structure does not contain a carbonyl group as part of the cyclic ring.

61. The compound of Claim 60, wherein said

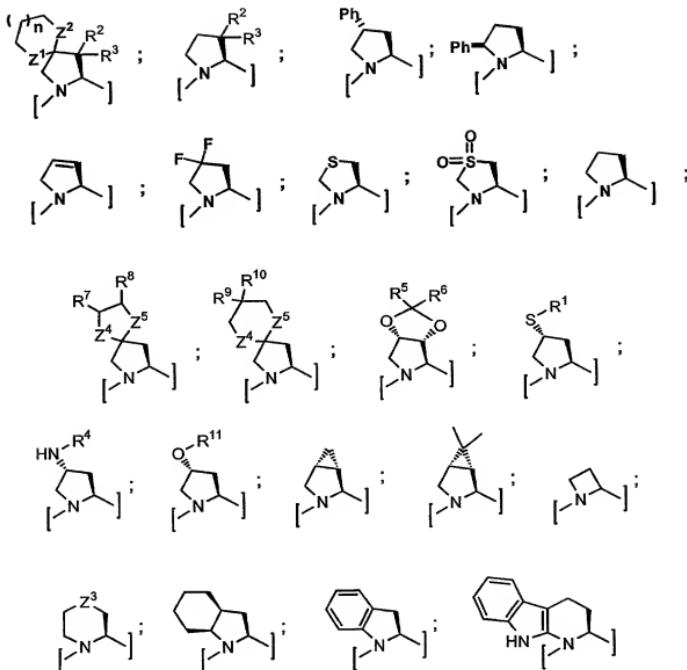


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indicates a five-membered ring or a six-membered ring.

62. The compound of Claim 60, wherein the moiety IV forms a structural unit selected from the group consisting of:

25



wherein  $n = 0, 1, 2$  or  $3$ ; and

5

$\mathbf{R}^2 = \mathbf{R}^3 = \mathbf{H}$ ;  $\mathbf{R}^2 = \mathbf{C}_1$  to  $\mathbf{C}_6$  straight chainalkyl or cycloalkyl;  $\mathbf{R}^3 = \mathbf{H}$   
 $\mathbf{R}^4 = \text{COAlkyl}$  (straight chain or cyclic,  $\mathbf{C}_1$  to  $\mathbf{C}_6$ );  $\text{COArly}$ ;  $\text{COOAlkyl}$ ;  $\text{COOArly}$ ,  
 $\text{SO}_2\text{Alkyl}$ ; or  $\text{SO}_2\text{Arly}$ .

**R<sup>5</sup> = H; R<sup>6</sup> = Alkyl (C<sub>1</sub> to C<sub>3</sub>); R<sup>6</sup> = H; R<sup>5</sup> = Alkyl (C<sub>1</sub> to C<sub>3</sub>)**  
**R<sup>7</sup> = H; R<sup>8</sup> = Alkyl (C<sub>1</sub> to C<sub>3</sub>), CH<sub>2</sub>OH; R<sup>8</sup> = H; R<sup>7</sup> = Alkyl (C<sub>1</sub> to C<sub>3</sub>), CH<sub>2</sub>OH;**

$\mathbf{R^9 = R^{10} = \text{Alkyl (C}_1 \text{ to C}_3\text{); R}^9 = \text{H, R}^{10} = \text{Alkyl (C}_1 \text{ to C}_3\text{), COOMe, COOH, CH}_2\text{OH;}}$

10  $\mathbf{R}^{10} = \text{H, R}^9 = \text{Alkyl (C}_1 \text{ to C}_3\text{), COOMe, COOH, CH}_2\text{OH;}$

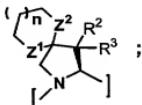
$R^{11}$  = Alkyl (C<sub>1</sub> to C<sub>6</sub> straight chain, branched or cyclic), CH<sub>2</sub>Aryl (may be substituted)

$X^1$  = H, Alkyl (C<sub>1</sub> to C<sub>4</sub>, branched or straight chain); CH<sub>2</sub>Aryl (substituted or unsubstituted)

5     $Z^1 = Z^2 = S, O; Z^1 = S, Z^2 = O; Z^1 = O, Z^2 = S; Z^1 = CH_2, Z^2 = O; Z^1 = O; Z^2 = CH_2; Z^1 = S, Z^2 = CH_2; Z^1 = CH_2, Z^2 = S; Z^3 = CH_2, S, SO_2, NH, NR^4; Z^4 = Z^5 = S, O.$

63.    The compound according to Claim 62, wherein said cyclic ring

10    moiety is:



wherein Z<sup>1</sup> and Z<sup>2</sup> are S, R<sup>2</sup> and R<sup>3</sup> are H and n=1 or 2.

64.    The compound according to Claim 63, wherein R<sup>2</sup> is selected from the group consisting of H, alkyl, alkenyl, alkoxy carbonyl, or (allyl amino)

15    carbonyl.

65.    The compound according to Claim 64, wherein R<sup>2</sup> is H.

66.    The compound according to Claim 63, wherein Ar<sup>1</sup> and Ar<sup>2</sup> are independently selected from the group consisting of phenyl, 2-thiophenyl, 2-furanyl, 3-furanyl, 3(4)-imidazolyl, 3-(1,2,4-triazolyl), 5-tetrazolyl, or 2-thiazolyl.

20    67.    The compound according to Claim 66 wherein Ar<sup>2</sup> is phenyl and Ar<sup>1</sup> is selected from the group consisting of 3-(1,2,4-triazolyl), 5-tetrazolyl, or 2-thiazolyl.

68.    The compound according to Claim 63, wherein R<sup>1</sup> is H, CF<sub>3</sub>, CH<sub>3</sub>,

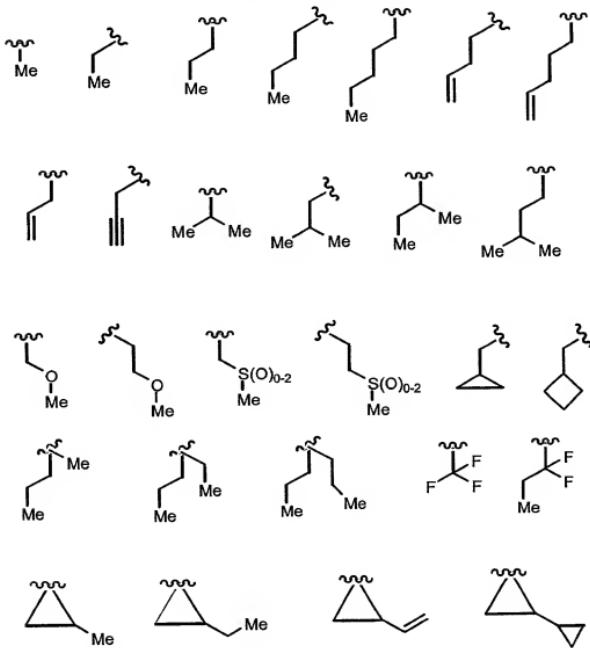
25    alkyl or alkenyl.

69.    The compound according to Claim 63, wherein P<sup>1</sup> is selected from the group consisting of H, F or CH<sub>3</sub>.

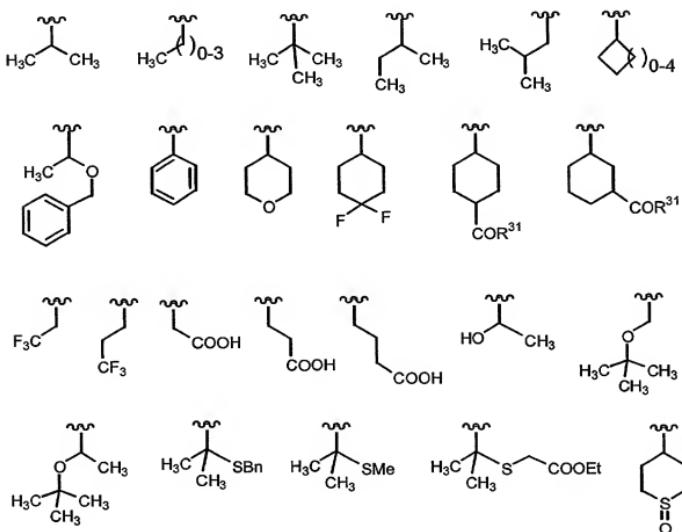
70.    The compound according to Claim 63, wherein P<sup>1</sup> is H such that P<sup>1</sup> and the adjacent nitrogen and carbonyl moieties correspond to the

30    residuum of glycine unit.

71. The compound of Claim 63, wherein P<sup>1a</sup> and P<sup>1b</sup> is selected from the group consisting of the following moieties:

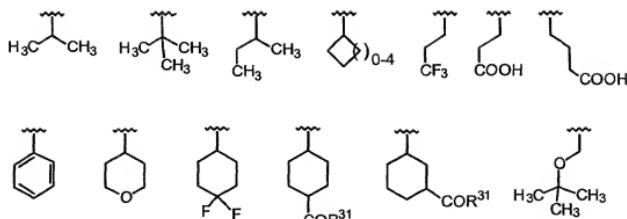


72. The compound according to Claim 63, wherein  $P^3$  is selected from the group consisting of:



wherein  $R^{31} \equiv OH$  or  $O-alkyl$ .

73. The compound of Claim 72, wherein  $R^3$  is selected from the group consisting of the following moieties:

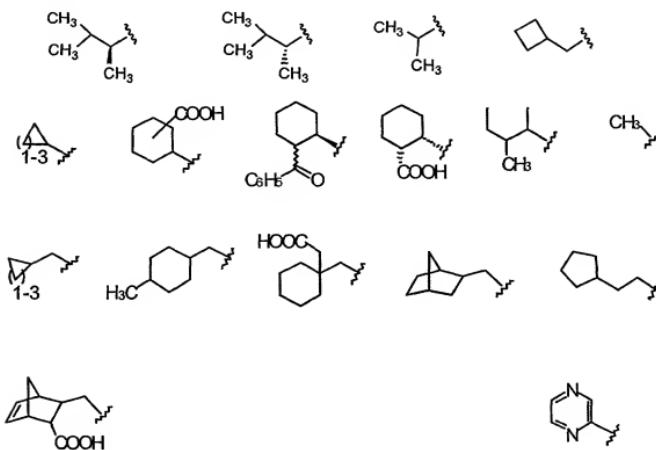


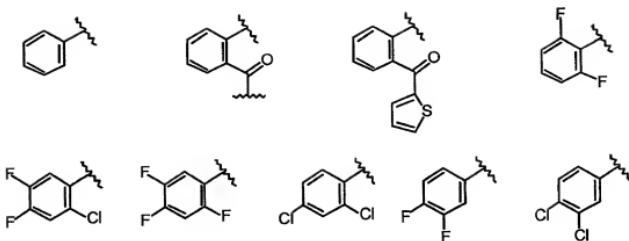
wherein  $R^{31} = OH$  or  $O-alkyl$

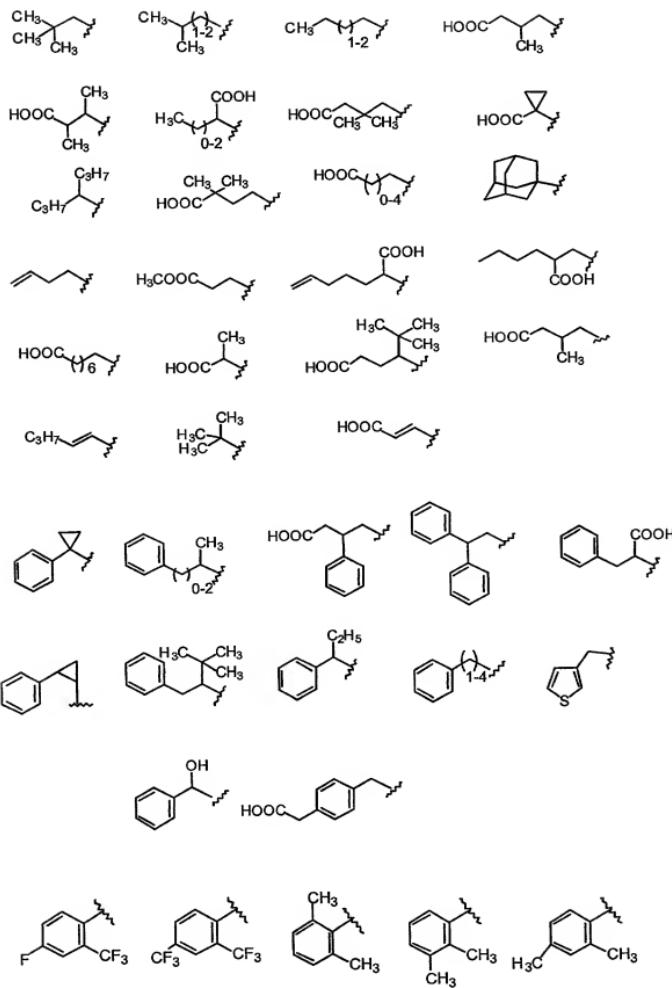
74. The compound of Claim 63, wherein U is NH and P<sup>4</sup> is alkyl or arylalkyl.

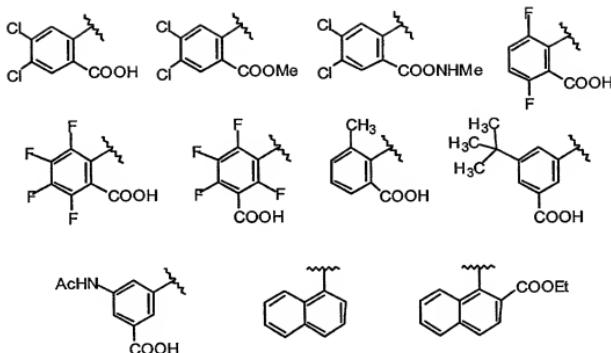
5 75. The compound according to Claim 63, wherein U is O or CH<sub>2</sub>.

76. The compound according to Claim 63, wherein P<sup>4</sup> is selected from the following moieties:









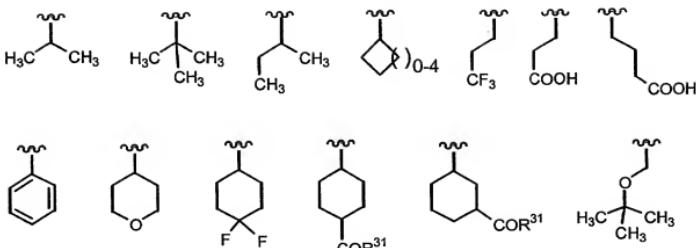
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77. The compound according to Claim 76, wherein U is  $\text{CH}_2$  and  $\text{P}^4$  is phenyl.

10 78. The compound according to Claim 76, wherein U is O and  $\text{P}^4$  is selected from the group consisting of methyl, tertiary butyl, isobutyl, and 2,3-dimethylpropyl.

79. The compound according to Claim 76 wherein  $\text{P}^2$  and  $\text{P}^3$  are independently selected from the group consisting of: H, linear alkyl, branched alkyl, or arylalkyl, such that  $\text{P}^2$  OR  $\text{P}^3$  and the adjacent nitrogen and carbonyl moieties thereto correspond to the residuum of an alpha amino acid.

15 80. The compound according to Claim 79, wherein  $\text{P}^3$  is selected from the following moieties:



wherein R<sup>31</sup> = OH or O-alkyl.

81. The compound according to Claim 80, wherein P<sup>3</sup> is selected from  
 5 the group consisting of isopropyl tertiary butyl, isobutyl and cyclohexyl  
 substituents.

82. A pharmaceutical composition comprising as an active ingredient a  
 compound of Claim 60.

83. The pharmaceutical composition of Claim 82 for use in treating  
 10 disorders associated with HCV.

84. The pharmaceutical composition of Claim 82 additionally  
 comprising a pharmaceutically acceptable carrier.

85. The pharmaceutical composition of Claim 84, additionally  
 containing an antiviral agent.

15 86. The pharmaceutical composition of Claim 85, still additionally  
 containing an interferon.

87. The pharmaceutical composition of Claim 86, wherein said antiviral  
 agent is ribavirin and said interferon is  $\alpha$ -interferon.

88. A method of treating disorders associated with the HCV virus, said  
 20 method comprising administering to a patient in need of such treatment a  
 pharmaceutical composition which comprises therapeutically effective  
 amounts of a compound of Claim 60.

89. The method of Claim 88, wherein said administration is  
 subcutaneous.

90. The use of a compound of Claim 60 for the manufacture of a medicament to treat disorders associated with the HCV virus.

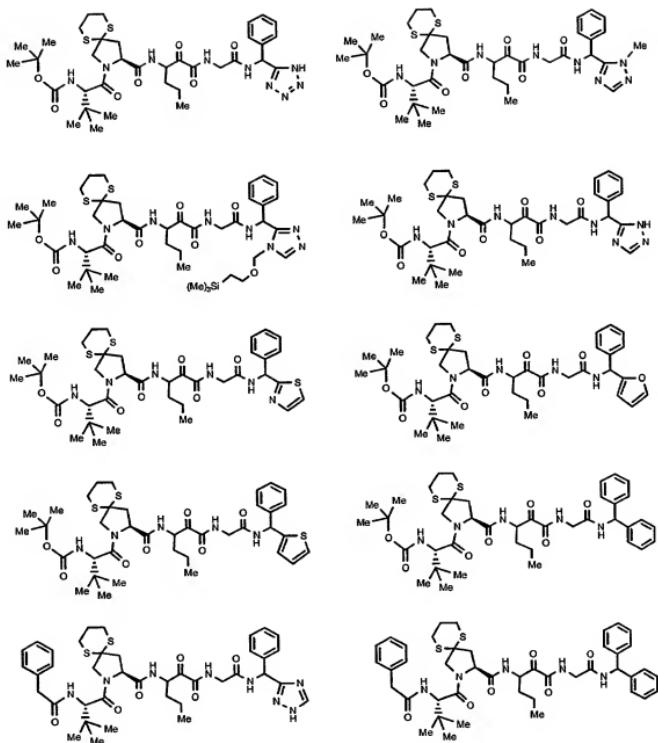
91. A method of preparing a pharmaceutical composition for treating the disorders associated with the HCV virus, said method comprising

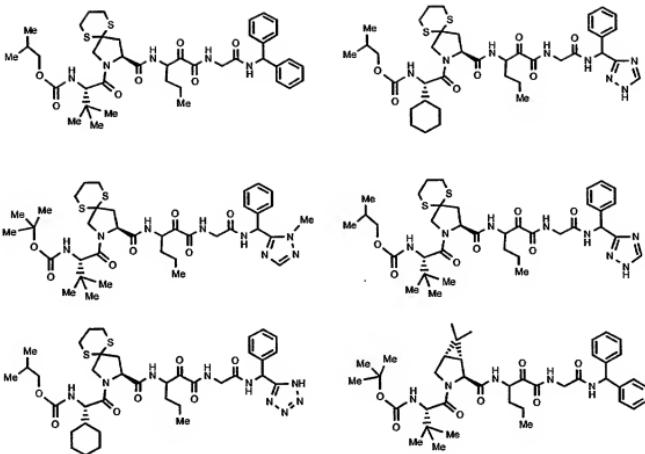
5 bringing into intimate contact a compound of Claim 60 and a pharmaceutically acceptable carrier.

92. A compound exhibiting HCV protease inhibitory activity, including enantiomers, stereoisomers and tautomers of said compound, and pharmaceutically acceptable salts or solvates of said compound, said

10 compound being selected from the compounds of structures listed in Claim 60.

93. The compound according to Claim 60, wherein said compound is selected from the group consisting of:





94. A pharmaceutical composition for treating disorders associated with the HCV virus, said composition comprising therapeutically effective amount of one or more compounds in Claim 93 and a pharmaceutically acceptable carrier.